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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Simon J. Lewis

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EXAMINER

LUKS, JEREMY AUSTIN

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/698,864	Applicant(s) LEWIS, SIMON J.	
	Examiner Jeremy Luks	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 and 31-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 and 31-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 11, and 14-19, 21, 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Goplen (4,872,528).

With respect to Claims 11, 14, 19 and 21, Goplen teaches a base (Figure 1, #3) having an opening (Col. 2, Line14-17) extending therethrough; and a spark barrier (4) mounted to the base (3), the spark barrier (4) being comprised of a sheet of mesh or porous material (Col. 2, Lines 23-24) having at least a substantially tubular, domed, conical, or frustoconical configuration (Col. 2, Lines 21-22), the sheet of mesh material (Col. 2, Lines 23-24) further comprising at least four discrete exposed folds (Figure 3, #8) (Col. 2, Lines 18-21) through which exhaust gas can pass; the folds (8) increasing the surface area of the mesh or porous material (Col. 2, Lines 23-24) per volume of space.

With respect to Claims 15, 16, 23 and 24, Goplen teaches a spark barrier (Figure 1, #4) having a mounting end (7) secured (5) to the base (3) and an opposing free end (6) spaced apart from the mounting end (7), each of the plurality of folds (8) longitudinally extending between the mounting end (7) and the free end (14), the free

end (6) of the spark barrier (4) being sealed closed (Col. 2, Lines 18-21).

With respect to Claims 17 and 18, Goplen teaches a spark barrier (Figure 1, #4) having an elongated substantially tubular configuration (Figure 3) and a substantially polygonal transverse cross section (Figure 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (5,969,299).

With respect to Claims 1, 2, 9 and 10 Yamaguchi teaches a tubular body (Figure 2, #2) having an interior surface (7) extending between a first end (5) and an opposing second end (11), the interior surface (7) bounding a chamber (C1-C3), an exhaust cap (13) disposed on the second end (11) of the tubular body (2), the exhaust cap (13) having an interior surface (12) bounding a channel (27) extending through the exhaust cap (13), the channel (27) being in communication with the chamber (C1-C3) of the body (2), an inlet cap (3) disposed on the first end (5) of the tubular body (2); a perf tube (24) longitudinally disposed within the chamber (C1-C3) of the tubular body (2); and a spark arrestor (Figure A, #A – See exploded view of spark arresting feature from Yamaguchi (5,969,299), Figure 5, provided by Examiner at the end of this Office Action)

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comprising a tubular neck (23) having a first end (1002) and an opposing second end (1003), the second end (1003) being removably secured (Col. 4, Lines 27-34) to the exhaust cap (Figure 2, #13) such that the first end (1002) is advanced within the channel (27) of the exhaust cap (13) toward the body (2); and a spark barrier (30) mounted on the first end (1002) of the tubular neck so as to be at least partially disposed within the perf tube (24), the spark barrier (30) being comprised of a sheet of mesh or porous material (Col. 4, Lines 20-22), and having one or more exposed ribs (31). Yamaguchi further teaches at least a portion of the exhaust cap (Figure 5, #13) having a thickness that is different than a thickness of the tubular body (2); and noise-absorbing packing (8, 25) disposed between the perf tube (24) and the body (2).

Yamaguchi fails to teach where the exhaust cap and tubular body are formed from a single material using impact intrusion. It would have been obvious to one of ordinary skill in the art at the time of the invention to form the exhaust cap and tubular body from a single material using impact intrusion, since it has been held that the method of forming a device is not germane to the issue of patentability of the device itself.

Therefore, this limitation has been given little patentable weight. Yamaguchi teaches wherein the body and exhaust cap are comprised of a metal.

With respect to Claim 3, Yamaguchi teaches an exhaust cap (Figure 5, #13) comprising a tubular sidewall (11₁) having a first end integrally formed (32) with the second end (11) of the body (2) and an opposing second end terminating at an end face; and the exhaust cap (Figure 2, #13) having an interior surface (12) bounding a

channel (27) extending through the exhaust cap (13) so as to communicate with the body (2).

3. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goplen (4,872,528). Goplen is relied upon for the reasons and disclosures set forth above.

Goplen fails to teach wherein a plurality of folds comprises at least seven folds.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a spark arrestor with seven folds, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the Art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

4. Claims 12, 22, 25-26, 29 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (5,969,299) in view of Goplen (4,872,528).

With respect to Claims 25 and 32, Yamaguchi teaches a tubular body (Figure 2, #2) having an interior surface (7) extending between a first end (5) and an opposing second end (11), the interior surface (7) bounding a chamber (C1-C3), an exhaust cap (13) disposed on the second end (11) of the tubular body (2), the exhaust cap (13) having an interior surface (12) bounding a channel (27) extending through the exhaust cap (13), the channel (27) being in communication with the chamber (C1-C3) of the body (2), an inlet cap (3) disposed on the first end (5) of the tubular body (2); a perf tube (24) longitudinally disposed within the chamber (C1-C3) of the tubular body (2); and a spark arrestor (Figure A, #A – See exploded view of spark arresting feature from Yamaguchi (5,969,299), Figure 5, provided by Examiner at the end of this Office Action) comprising a tubular neck (23) having a first end (1002) and an opposing

second end (1003), the second end (1003) being removably secured (Col. 4, Lines 27-34) to the exhaust cap (Figure 2, #13) such that the first end (1002) is advanced within the channel (27) of the exhaust cap (13) toward the body (2); and a spark barrier (30) mounted on the first end (1002) of the tubular neck so as to be at least partially disposed within the perf tube (24), the spark barrier (30) being comprised of a sheet of mesh or porous material (Col. 4, Lines 20-22), and having one or more exposed ribs (31). Yamaguchi further teaches at least a portion of the exhaust cap (Figure 5, #13) having a thickness that is different than a thickness of the tubular body (2); and noise-absorbing packing (8, 25) disposed between the perf tube (24) and the body (2).

Yamaguchi fails to teach a spark barrier having one or more exposed folds through which exhaust gas can pass, the one or more folds increasing surface area of the mesh or porous material per volume of space. Goplen teaches a spark barrier (Figure 1, #4) having one or more exposed folds (8) through which exhaust gas can pass, the one or more folds (8) increasing surface area of a mesh or porous material (Col. 2, Lines 23-24) per volume of space. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Yamaguchi with the apparatus of Goplen to provide a substantial reduction in sound level without increasing the overall size of the muffler, and without appreciably increasing the weight.

With respect to Claims 12 and 22, Yamaguchi teaches a base (Figure A, #1001 – See exploded view of spark arresting feature from Yamaguchi (5,969,299), Figure 5, provided by Examiner at the end of this Office Action) comprising a tubular neck (23)

having a first end (1002) and an opposing second end (1003), the spark barrier (30) being mounted to the first end (1002) of the tubular neck (23) so that exhaust gas can pass through the spark barrier (30) and into the tubular neck (23).

With respect to Claim 26, Yamaguchi teaches an exhaust cap (Figure 5, #13) comprising a tubular sidewall (11₁) having a first end integrally formed (32) with the second end (11) of the body (2) and an opposing second end terminating at an end face; and the exhaust cap (Figure 2, #13) having an interior surface (12) bounding a channel (27) extending through the exhaust cap (13) so as to communicate with the body (2).

With respect to Claim 29 Yamaguchi teaches a muffler body (Figure 3, #2) having a substantially uniform transverse cross section along the length thereof (See cross-sectional view of Figure 3).

With respect to Claim 31, Yamaguchi and Goplen are relied upon for the reasons and disclosures set forth above. Yamaguchi and Goplen fail to teach wherein a plurality of folds comprises at least seven folds. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a spark arrestor with seven folds, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the Art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

5. Claims 4-7, 13, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (5,969,299) in view of Goplen (4,872,528) as applied to Claims 1, 11 and 25 above, and further in view of Tsukahara (5,718,045). Yamaguchi

and Goplen are relied upon for the reasons and disclosures set forth above.

Yamaguchi and Goplen fail to describe a bent or curved tubular neck and exhaust channel. Tsukahara teaches a body (Figure B, #5 – See exploded view of Figure 3 from Tsukahara (5,718,045), provided by Examiner at the end of this Office Action) having a central longitudinal axis extending through the chamber (C1-C4) thereof, the end face (102) of the exhaust cap (7) being disposed in a plane that forms an inside angle with the central longitudinal axis that is less than about 80°, the channel (108) of the exhaust cap (7) being bent or curved (14) relative to the central longitudinal axis; and the sidewall of the exhaust cap (Figure B, #7) has an exterior surface (103) that radially inwardly tapers from the first (106) end to the second end (107) thereof; and the first end (Figure B, #104) of the side wall of the exhaust cap (7) has an inside face (101) that radially inwardly projects relative to the body (5), a tubular stem (101) projects from the inside face (105) toward the body (5), the tubular stem (101) bounding at least a portion of the channel (108) extending through the exhaust cap (7). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Yamaguchi as modified, with the apparatus of Tsukahara in order divert exhaust gasses away from the vehicle.

6. Claims 8, 33-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (5,969,299) in view of Goplen (4,872,528) as applied to Claim 1 above, and further in view of Klein (2002/0108428) and Crandell (5,304,749)

With respect to Claims 8 and 33-36, Yamaguchi discloses a tubular body (Figure 2, #2), having a first end (5) and an opposing second end (11), with a mounting bracket

(14) secured to the exterior surface of the top wall. Yamaguchi fails to describe the other elements described in these claims. Goplen also fails to teach the elements described by these claims. Klein teaches a body comprising a top wall (Figure C, #101 – See exploded view of Figure 2 from Klein (US 2002/0108428 A1), provided by Examiner at the end of this Office Action), a bottom wall (102), and a pair of opposing side walls (103, 104) extending therebetween, the top wall (101) and bottom wall (102) having a substantially flat exterior surface extending along the length thereof; and the top wall (101) having a thickness (11) and each of the side walls having a thickness (105), the thickness (11) of the top wall (101) being greater than the thickness (105) of at least one of the side walls (104); at least one of the sidewalls (Figure C, #103) has an outwardly bowed exterior surface extending along the length thereof. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine apparatus of Yamaguchi as modified, with the apparatus of Klein to provide an exhaust housing with high strength and shape stability that is lightweight. Klein fails to teach a top wall having a flat surface. Crandell teaches a top wall (Figure 1, #18) having a flat surface. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine apparatus of Yamaguchi as modified, with the apparatus of Crandell to fit the muffler in a variety of motor vehicles

With respect to Claim 37, Yamaguchi teaches a muffler body (Figure 3, #2) having a substantially uniform transverse cross section along the length thereof (See cross-sectional view of Figure 3).

With respect to Claims 38 and 39, Yamaguchi teaches a tubular body (Figure 2, #2) having an interior surface (7) bounding a chamber (C1-C3), an exhaust cap (13) integrally formed on the second end (11) of the tubular body (2), the exhaust cap (13) having an interior surface (12) bounding a channel (27) extending through the exhaust cap (13) so as to communicate with the chamber (C1-C3) of the body (2); an inlet cap (3) disposed on the first end (5) of the tubular body (2); a perf tube (24) longitudinally disposed within the muffler canister (1); and noise absorbing packing (8) disposed between the perf tube (24) and the canister (1).

With respect to Claim 40, Yamaguchi teaches a spark arrestor (Figure A, #A – See exploded view of spark arresting feature from Yamaguchi (5,969,299), Figure 5, provided by Examiner at the end of this Office Action) comprising a tubular neck (23) removably disposed (Col. 4, Lines 27-34) within the channel (27) of the end cap (13), the tubular neck (23) having a first end (1002) and an opposing second end (1003); and a spark barrier (30) mounted at the first end (1002) of the tubular neck so as to be at least partially disposed within the chamber (Figure 2, C1-C3) of the body (2), the spark barrier (30) being comprised of a sheet of mesh or porous material (Col. 4, Lines 20-22).

With respect to Claim 41, Yamaguchi teaches a sheet of mesh or porous material (Col. 4, Lines 20-22). Yamaguchi fails to teach a plurality of folds.

Nevertheless, Goplen teaches a plurality of folds (Figure 1, #8). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Yamaguchi with the apparatus of Goplen to provide a substantial

reduction in sound level without increasing the overall size of the muffler, and without appreciably increasing the weight.

Response to Arguments

7. Applicant's arguments with respect to claims 1-29 and 31-41 have been considered but are moot in view of the new ground(s) of rejection. The Examiner feels that the obvious combination of the prior art teaches all of the limitations described by Applicant with respect to these claims

Conclusion

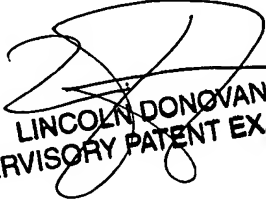
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent arts of record related to mufflers with spark arrestors are disclosed in the PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeremy Luks
Patent Examiner
Art Unit 2837



LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER

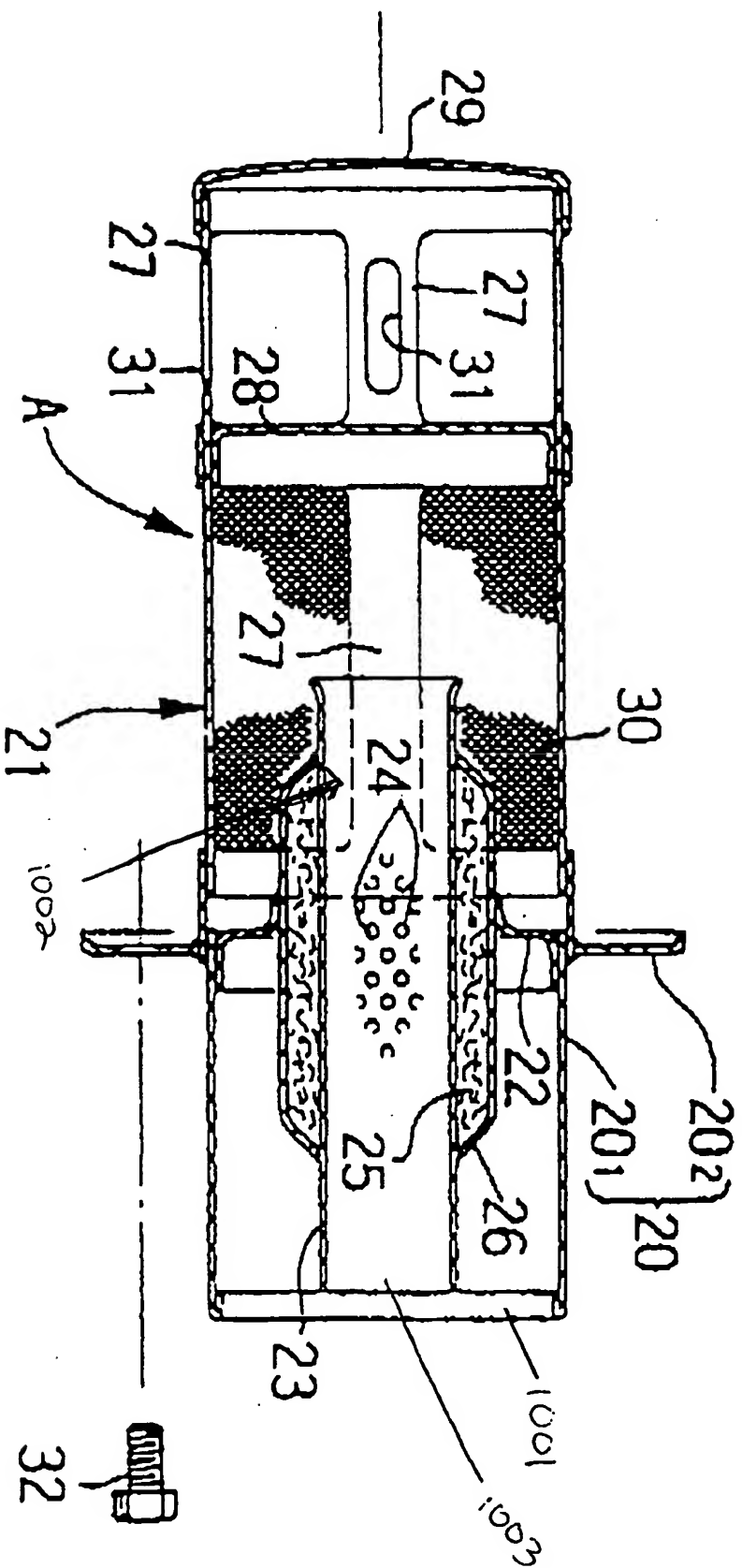


Figure A.

from Yamaguchi, 5,969,399, Figure 5

